In the Matter of the Chartered Professional Engineers of New Zealand Act 2002

Appeal 07/15

AND

In the matter of an appeal to the Chartered Professional Engineers Council pursuant to Section 35

From

Mr B
Appellant

Against a decision of

IPENZ (as the Registration Authority under the Chartered Professional Engineers of New Zealand Act 2002)
Respondent

Decision of the Chartered Professional Engineers Council
Dated 15 December 2015

The Legislation

1. Mr B appealed against an assessment by the Registration Authority being a decision of a Competence Assessment Board of the Registration Authority declining his application for registration as a Chartered Professional Engineer (CPEng).

2. That right of appeal is contained in s35 of the Act and s37 of the Act sets out the scope of this Council's jurisdiction which is to deal with the matter by way of rehearing. For that purpose we have been provided

with the complete file of the Registration Authority relating to the case, which has been paginated.

3. Under s8 of the Chartered Professional Engineers Act 2002 ("the Act") the Registration Authority must register a person if he or she, amongst other matters, satisfies the Registration Authority that he or she meets the minimum standards for registration contained in the Rules.

4. The Rules are the Chartered Professional Engineers of New Zealand Rules (No.2) 2002 ("the Rules"). The Rules were enacted pursuant to s40 of the Act as regulations.

5. Under the Rules minimum standards for registration as a Chartered Professional Engineer are set under Rule 6:

> *"6 Minimum standard for registration as chartered professional engineer*
>
> *(1) To meet the minimum standard for registration, a person must demonstrate that he or she is able to practise competently in his or her practice area to the standard of a reasonable professional engineer.*
>
> *(2) The extent to which the person is able to do each of the following things in his or her practice area must be taken into account in assessing whether or not he or she meets the overall standard in subclause (1):*
>
> *(a) comprehend, and apply his or her knowledge of, accepted principles underpinning—*
>
> *(i) widely applied good practice for professional engineering; and*
>
> *(ii) good practice for professional engineering that is specific to New Zealand; and*
>
> *(b) define, investigate, and analyse complex engineering problems in accordance with good practice for professional engineering; and*
>
> *(c) design or develop solutions to complex engineering problems in accordance with good practice for professional engineering; and*
>
> *(d) exercise sound professional engineering judgement; and*
>
> *(e) be responsible for making decisions on part or all of 1 or more complex engineering activities; and*
>
> *(f) manage part or all of 1 or more complex engineering activities in accordance with good engineering management practice; and*
>
> *(g) identify, assess, and manage engineering risk; and*

(h) conduct his or her professional engineering activities to an ethical standard at least equivalent to the code of ethical conduct; and

(i) recognise the reasonably foreseeable social, cultural, and environmental effects of professional engineering activities generally; and

(j) communicate clearly to other engineers and others that he or she is likely to deal with in the course of his or her professional engineering activities; and

(k) maintain the currency of his or her professional engineering knowledge and skills."

6. Relevant to the interpretation of Rule 6 is Rule 7:

For the purposes of rule 6,—

***complex engineering activities** means engineering activities or projects that have some or all of the following characteristics:*

(a) involve the use of diverse resources (and, for this purpose, resources includes people, money, equipment, materials, and technologies):

(b) require resolution of significant problems arising from interactions between wide-ranging or conflicting technical, engineering, and other issues:

(c) have significant consequences in a range of contexts:

(d) involve the use of new materials, techniques, or processes or the use of existing materials, techniques, or processes in innovative ways

***complex engineering problems** means engineering problems that have some or all of the following characteristics:*

(a) involve wide-ranging or conflicting technical, engineering, and other issues:

(b) have no obvious solution and require originality in analysis:

(c) involve infrequently encountered issues:

(d) are outside problems encompassed by standards and codes of practice for professional engineering:

(e) involve diverse groups of stakeholders with widely varying needs:

(f) have significant consequences in a range of contexts:

(g) cannot be resolved without in-depth engineering knowledge.

7. The overriding consideration is that expressed in Rule 6(1) that is that a Chartered Professional Engineer should be able to practise competently in his or her practice area to the standard of a reasonable professional engineer.

8. The matters listed in subsection 6(2)(a) to (k) *must be taken into account* in making an overall assessment required by Rule 6(1). However the Rules do not provide for a mandatory "pass mark" for these matters, and nor could they. Ultimately, taking the matters in (6)(2) into account, an objective decision still needs to be made as to whether an applicant meets the overall standard prescribed in Rule (6)(1).

9. The Registration Authority has recast the Regulations into a summary of 12 Elements. It is helpful to refer to these elements since that is what the Registration Authority refers to in its assessments, though we note that the actual test is that listed in Rule 6(1).

Background

10. The Appellant applied to the Registration Authority seeking registration as a Chartered Professional Engineer in the practice field of Industrial and Structural engineering on 30 August 2013.

11. The application included:

    (a) A competence assessment self-review (CA03). This document in turn refers to a number of work examples;

    (b) Curriculum Vitae;

    (c) CPD records from 2008 to 2013;

    (d) Certificates of Membership;

    (e) 5 work examples:

(i) Two storey commercial/industrial building in Johnsonville, Wellington. Structural calculation spread sheets, computer model outputs, general layout plans and structural plans, sections and details. Structural specifications

(ii) RSB Ltd, Whangarei. Structural calculation spread sheets, computer model outputs, structural plans, elevations and sections and details. Egress plans. Bracing/strut detail and calculations

(iii) Design verification of container steel building, Wiri, Auckland. Structural and storm water calculation spread sheets, computer model outputs, structural plans and sections, egress plan, fire code compliance report.

(iv) New truck access road Glenbrook. Civil drawings, road barrier structural calculations.

(v) 19,000 l Class 3 Bulk Tank Resource Consent Application. District Plan assessment report, Risk assessment report, tank layout and foundations plan.

12. Some of the evidence listed above was provided with the original application. Other papers (e.g. page 319/506) were provided subsequent to the interactive assessment at the request of the Assessors.

13. After the work samples had been submitted the Assessors requested that Mr B complete a 3 hour written assessment (pages 323-339/506)

14. The Assessment panel prepared a report (CA07) in support of its position (pages 342 to 349/506) which overall found that registration as CPEng should be declined. Specifically the Assessment Panel found that the Appellant did not "demonstrate competence" so as to meet the standard of Rule (6)(1) in the following elements: 1, 2, 3, 4, 5, 7, 10, 11 and 12.

15. The Assessment Panel found that the Appellant "demonstrated marginal competence" at the engineering technologist (ET) level in elements 1, 2, 3, 4, 5, 7, 10and 12, and does not demonstrate competence at ET level for element 11

16. The CAB took this report into account in coming to its decision to decline registration. The CAB issued their decision including the CA07 report on 18 December 2014 (pages 359 – 368/506).

17. The Appellant submitted a Natural Justice submission on 20 January 2014 (page 370 -409/504). This submission addressed each of the 9 elements where the Assessment Panel had found that the Appellant did not "demonstrate competence"

18. The CAB sent the natural justice submission back to the Assessment Panel. The panel reissued their CA07 report ((page 468 – 476/506) on 17 February 2015. The revised report contained a single additional paragraph (page 475/506) stating that the natural justice submission had not provided sufficient new evidence that would lead the panel to alter their original findings.

19. The Registration Authority issued their decision including the updated CA07 on 9 March 2015 (pages 484 – 495/506).

20. The Appellant issued a notice of appeal dated 5 April 2015 (pages 496 – 500/506).

21. After initially acknowledging receipt of the notice appeal, the Council outlined the process to be followed in an email dated 24 August 2015. At a meeting on 11 September 2015 the Council appointed a panel comprising Jon Williams (Principal), Roly Frost and Chris Harrison (members). The process for progressing the appeal was confirmed by letter dated 17 September 2015.

22. The RA provided their submission including a paginated bundle of all documentation on 18 September 2015.

23. The Appellant provided his submission on 22 October 2015.

24. Given the specific technical nature of the concerns raised by the Assessment Panel, the Appeal Panel engaged an independent structural engineering specialist to review the work samples and written assessment produced by the Appellant. The specialist has experience as both a staff and practice area specialist. The report was issued to all parties by email on 27 November 2015.

25. The appeal hearing took place in Wellington on 7 December 2015.

The Hearing

26. The Appellant was asked to demonstrate how the evidence he had provided (the work samples and competence self-review form CA03 (pages 9 – 25/506)) demonstrated competence against the standards set in Rule 6 (2) (a) – (k).

27. Whilst the final test of competence must be against Rules 6 (1) and 6 (2). The Appeal Panel has considered the 12 competencies as defined in the IPENZ document CA30 - Competency Standards with Revised Indicators (Version 3.2) 6 August 2013.

28. As noted above, the Registration Authority's Assessment Panel found that the Appellant did not "demonstrate competence" in the following elements: 1, 2, 3, 4, 5, 7, 10, 11 and 12.

29. The Assessment Panel outlined their concerns against each element in the their CA07 report (pages 344 – 348/506).

30. From the evidence presented by the Appellant at the hearing the Appeal Panel could find no reason to vary any of the decisions made by the Assessment Panel. Specifically:

(a) The development and use of spread sheets to perform calculations defined in a code or standard does not constitute complex engineering at a level defined for "Professional Engineers". The work samples provided by the Appellant and the evidence presented at the hearing focussed on this type of activity.

(b) The Assessment Panel considered that the written assessment indicated "significant gaps in his knowledge" (page 344/506). The independent review of the work samples included observations that:

(i) There is little knowledge or understanding of reinforced concrete detailing.

(ii) There is little knowledge of current practice or recent research relating to issues with proprietary floor systems.

(iii) The understanding of structural behaviour and modelling is limited.

(iv) There is little understanding of the principles of lateral load resisting systems.

(c) The Appellant's responses to questions from the Appeal Panel during the hearing reinforced the independent review findings of significant gaps in knowledge, referred to in (b) above.

(d) The stated CPD relying almost entirely on "on the job training" is inadequate given the Appellant has moved from another

jurisdiction and from work focussed on municipal water networks to structural engineering.

(e) The Appeal Panel was most concerned about the Appellant's self-belief that he could adequately design a 8-10 storey building. This clearly indicated that the Appellant "did not know what he did not know".

Findings

31. Ultimately, the test of competency is an objective one made by the people making the assessment.

32. Having said that, the onus is always on an applicant to prove that he or she meets the appropriate standard for registration as a Chartered Professional Engineer.

33. In this case we conclude that the Appellant has not proven that he has met the requisite standard.

34. The Appeal Panel was particularly concerned by the Appellant's absolute reliance on spread sheet calculations with no wider engineering judgment or knowledge demonstrated. Such judgement is a key part of being a Charted Professional Engineer.

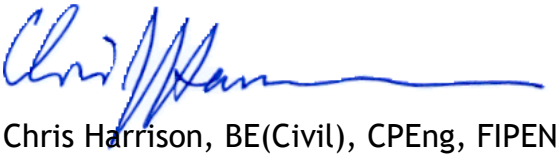
35. The appeal is therefore declined.

36. While we have the power to award costs we do not think that it is appropriate in a case such as this.

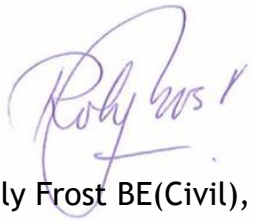
Dated this 15th day of December 2015

Signed By the Appeals Panel

Jon Williams BE (Electrical) CPEng, FIPENZ
Principal



Chris Harrison, BE(Civil), CPEng, FIPENZ



Roly Frost BE(Civil), CPEng, FIPENZ